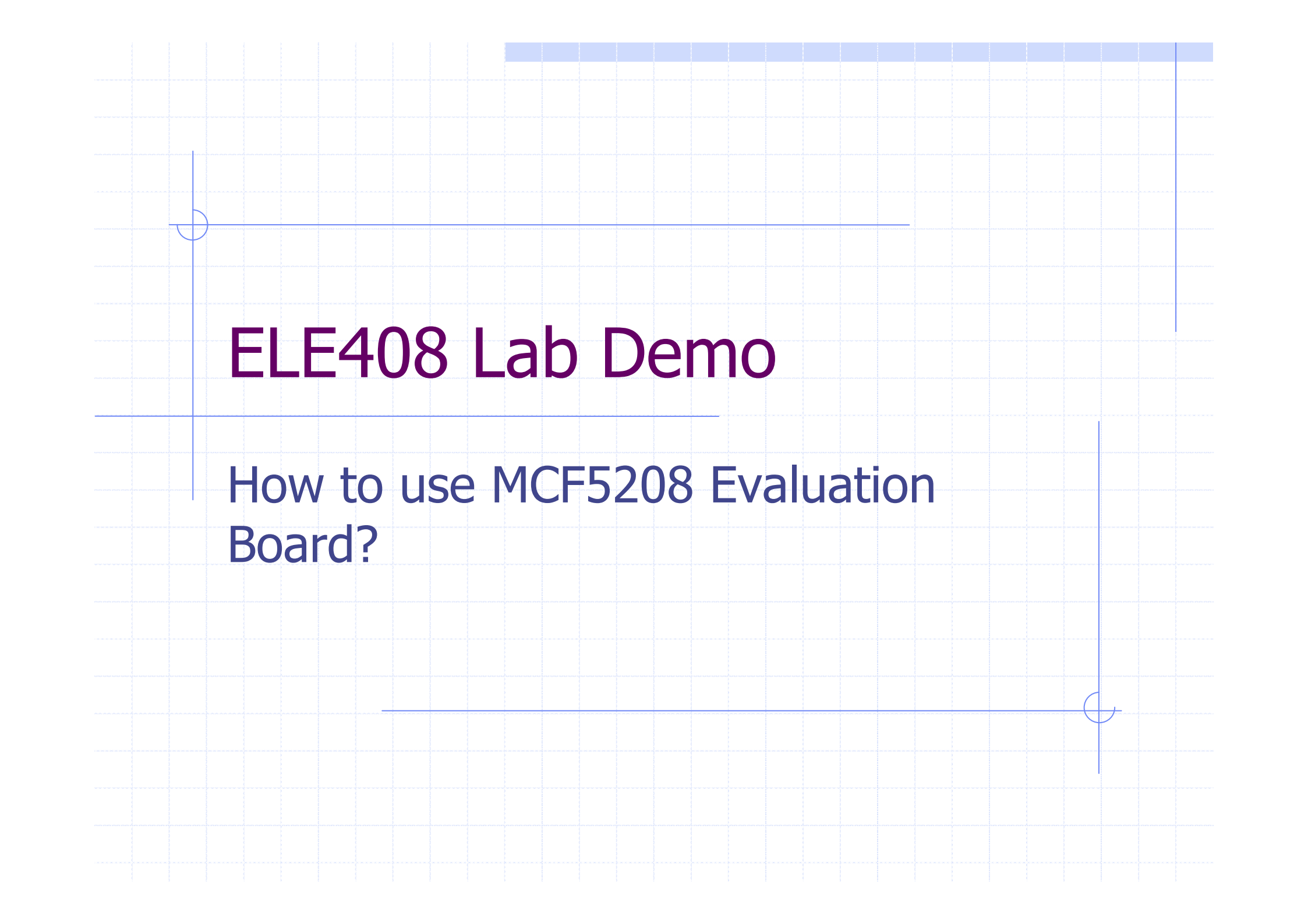




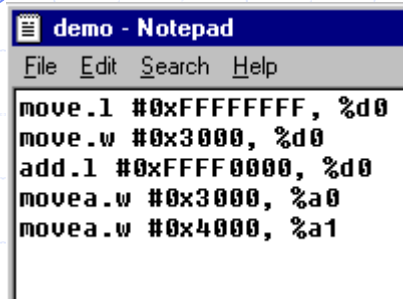
ELE408 Lab Demo

How to use MCF5208 Evaluation Board?

Hardware used in the lab

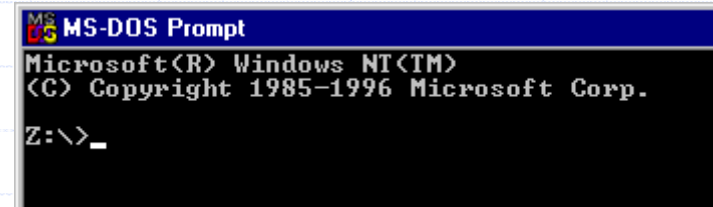
- ◆ Motorola ColdFire MCF5208EVB
- ◆ PC as a dumb terminal (COM1)
- ◆ Meterman for Power Measurement
- ◆ Cables

The Software used in the lab



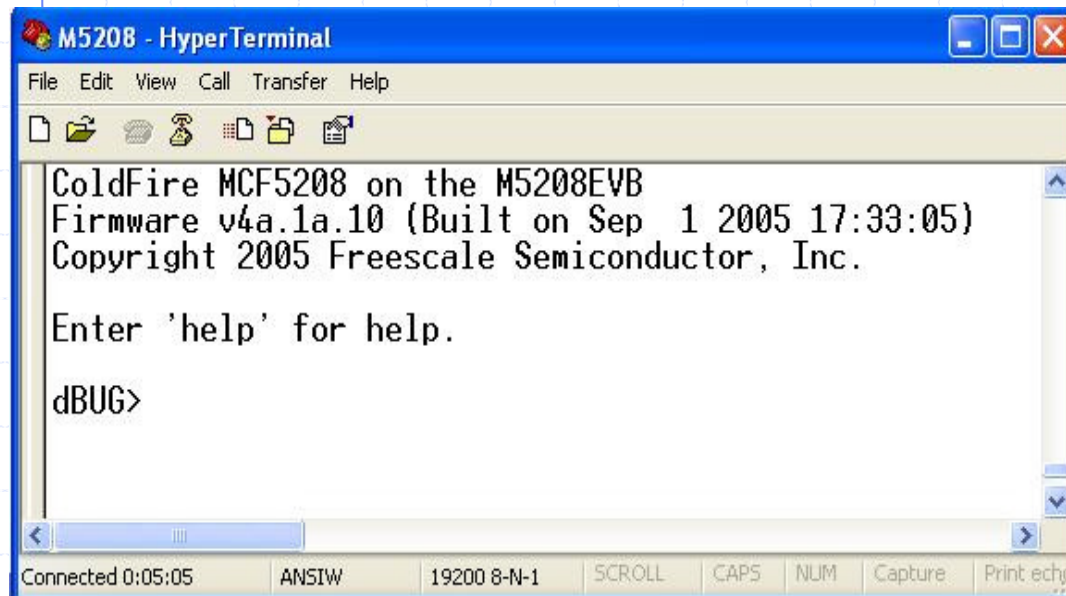
```
demo - Notepad
File Edit Search Help
move.l #0xFFFFFFFF, %d0
move.w #0x3000, %d0
add.l #0xFFFF0000, %d0
movea.w #0x3000, %a0
movea.w #0x4000, %a1
```

1. The notepad software is used to edit programs



```
MS-DOS Prompt
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.
Z:\>_
```

2. The MS-DOS Prompt is used to compile programs



```
M5208 - HyperTerminal
File Edit View Call Transfer Help
ColdFire MCF5208 on the M5208EVB
Firmware v4a.1a.10 (Built on Sep 1 2005 17:33:05)
Copyright 2005 Freescale Semiconductor, Inc.

Enter 'help' for help.

dBUG>
```

3. The Hyper Terminal is used to communicate with the 5208 board

4. ColdFire cross compiler

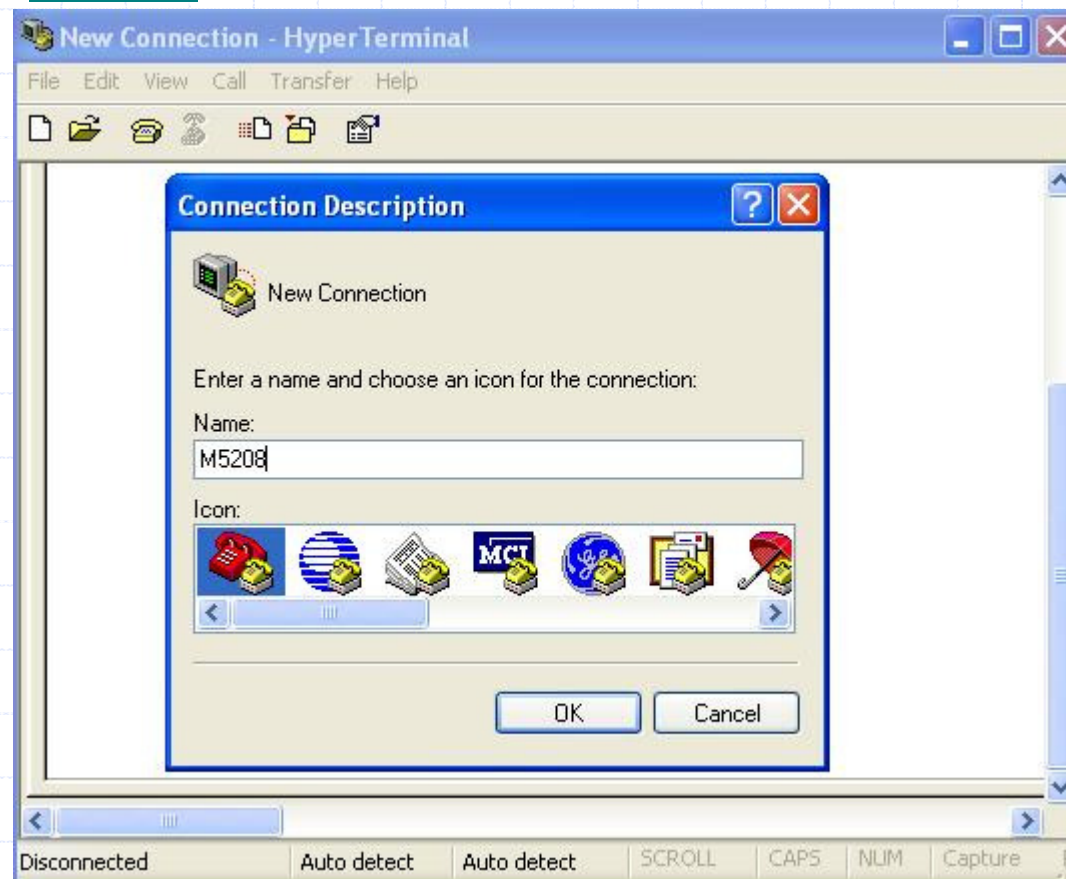
Hooking up hardware

- ◆ Connect COM1 of PC to Terminal connector on MCF5208EVB;
- ◆ Apply power to the board.

Running the dumb terminal

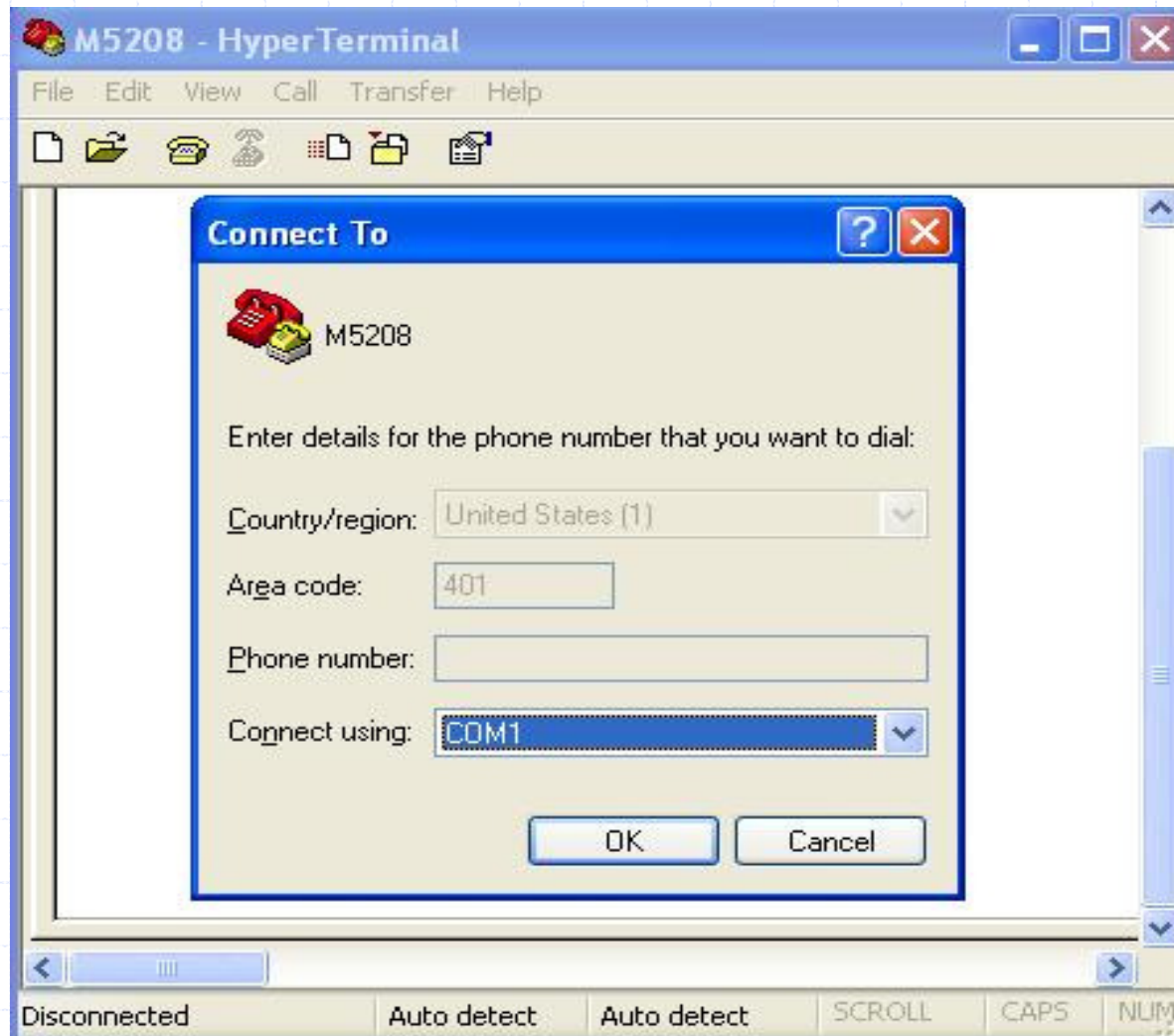


1. On Windows XP, Start -> All Programs -> Accessories -> Communications->HyperTerminal

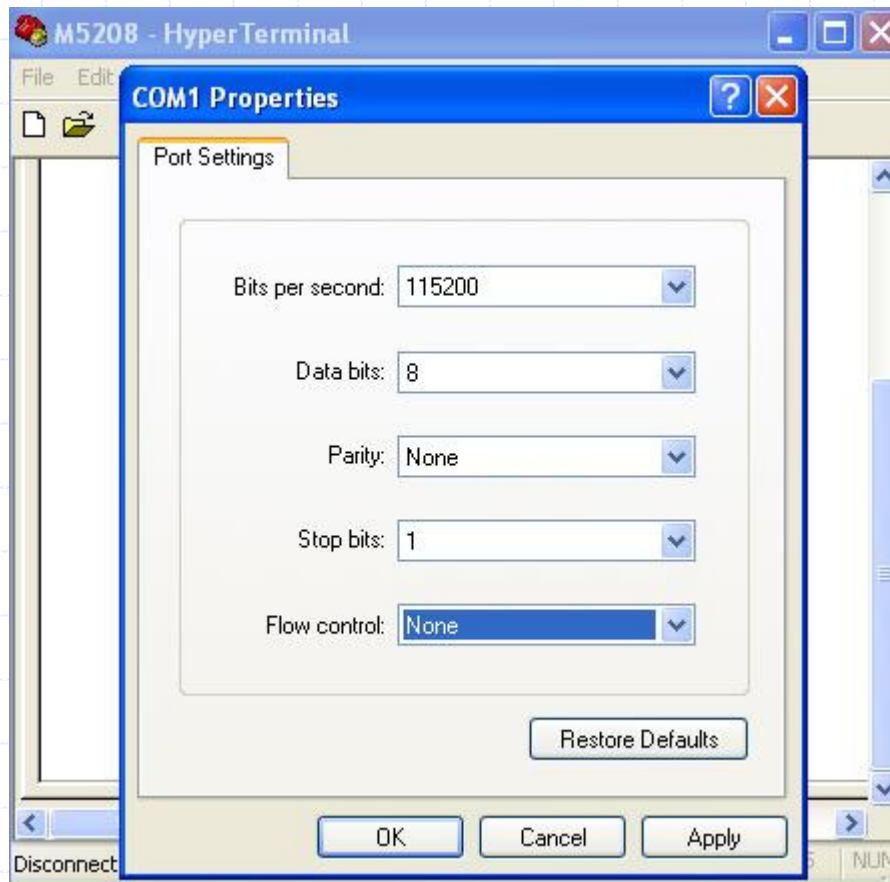


**2. Input
connection name**

Set the "Connect using" to COM1

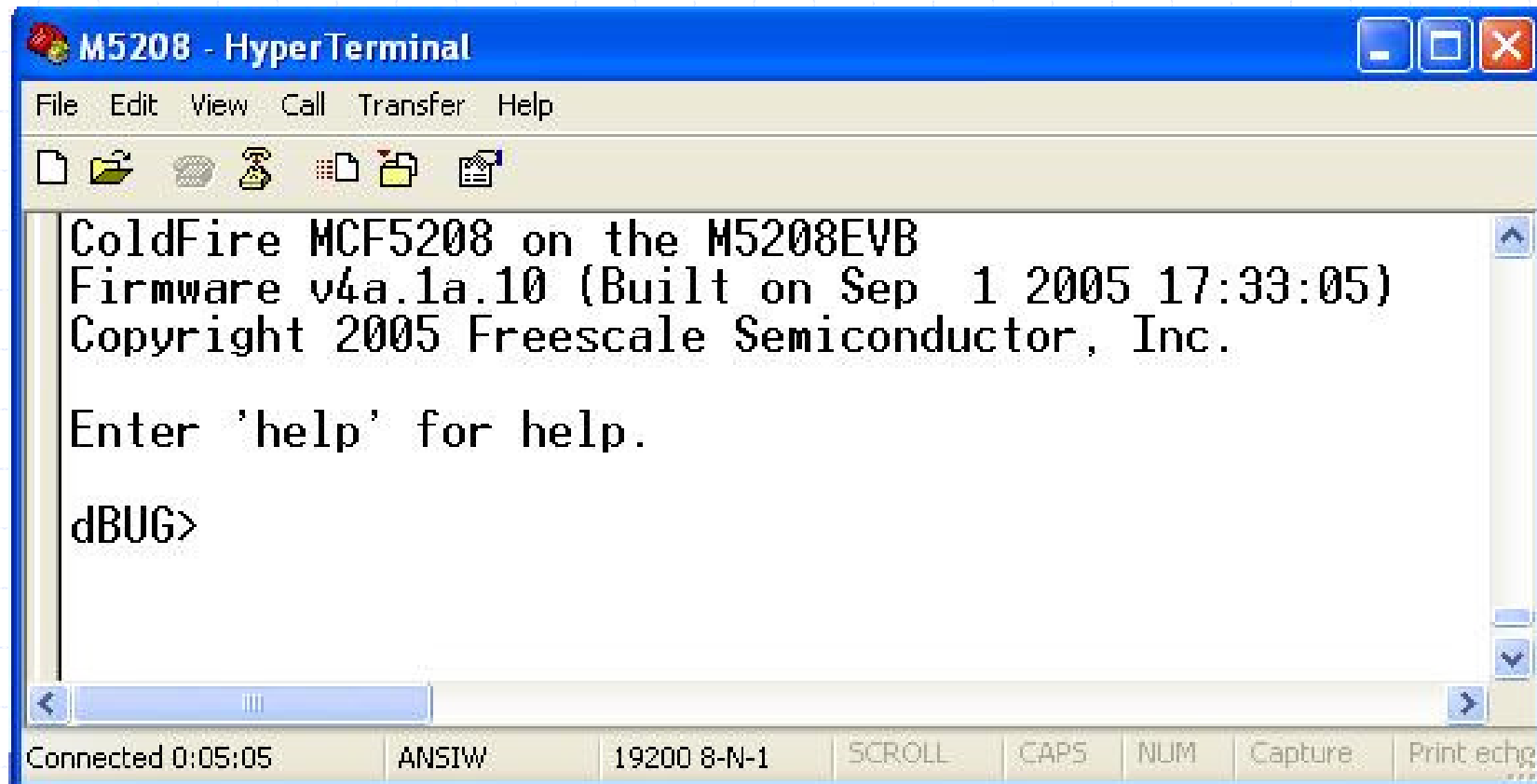


Set COM1 Properties



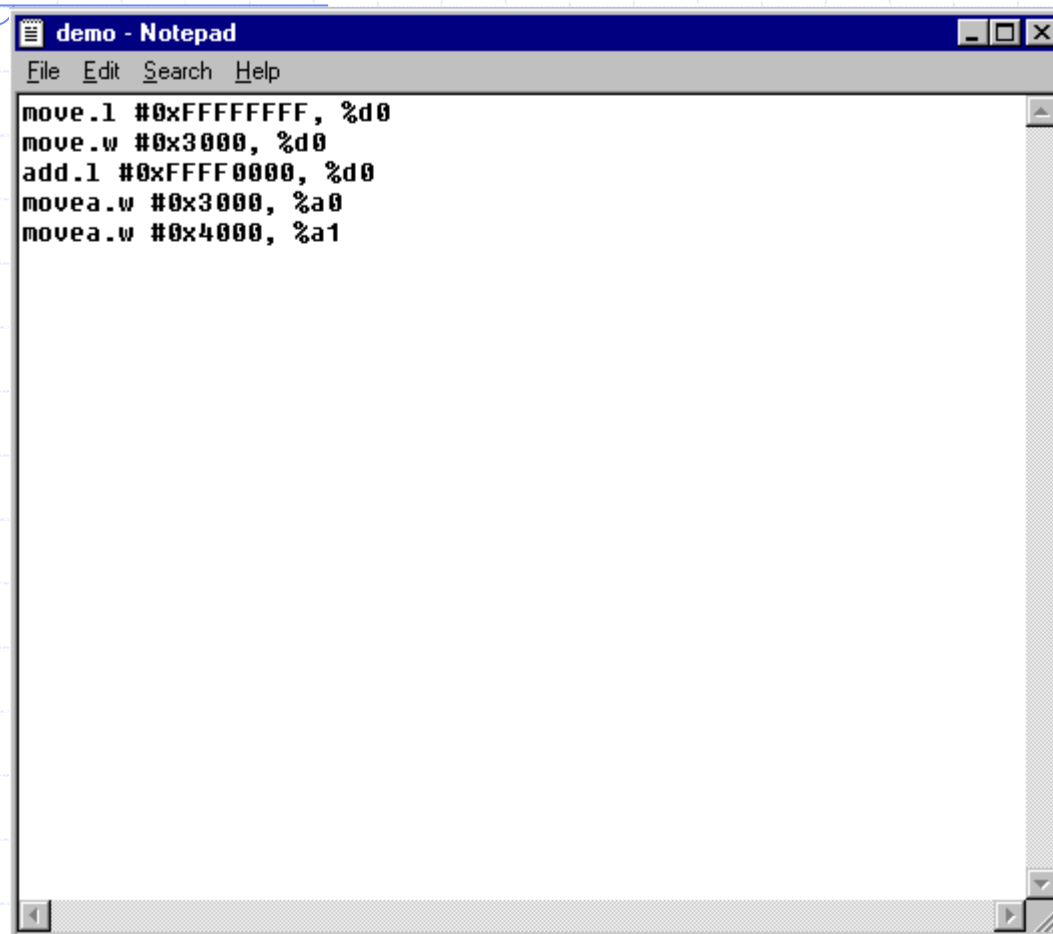
- Bits per second: 115200;
- Data bits: 8;
- Parity: None;
- Stop bits: 1;
- Flow control: off

Hard Reset MCF5208EVB



By pushing the reset button at the left-bottom of the board.

Writing your codes



A screenshot of a Notepad window titled "demo - Notepad". The window has a menu bar with "File", "Edit", "Search", and "Help". The text area contains the following assembly code:

```
move.l #0xFFFFFFFF, %d0
move.w #0x3000, %d0
add.l #0xFFFF0000, %d0
movea.w #0x3000, %a0
movea.w #0x4000, %a1
```

- Use any text editor you like.
- Save your code as filename.s.

dBug and Cross Compiler

◆ Assembly syntax

Immediate data

#\$FD12 in dBug mode

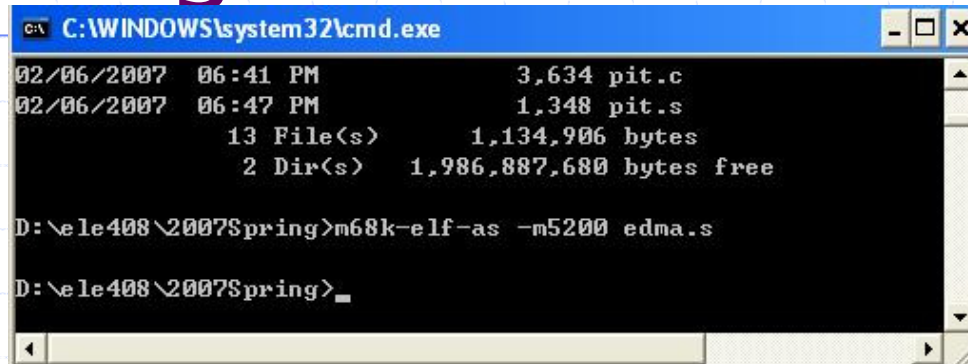
#0xFD12 in compiler mode

Register

D0,A0 in dBug

%D0,%A0 in compiler mode (with prefix '%')

Using the cross compiler

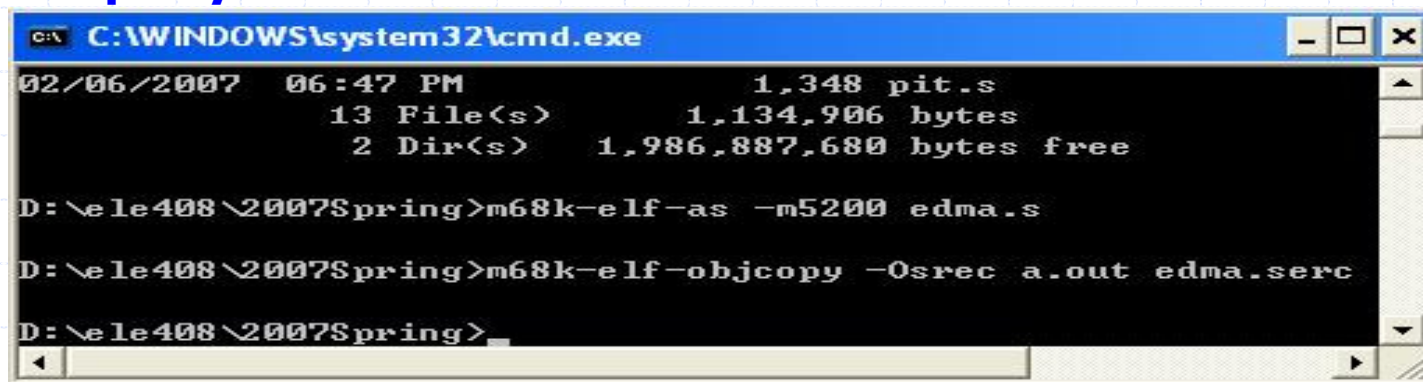


```
C:\WINDOWS\system32\cmd.exe
02/06/2007 06:41 PM          3,634 pit.c
02/06/2007 06:47 PM          1,348 pit.s
          13 File(s)      1,134,906 bytes
          2 Dir(s)      1,986,887,680 bytes free

D:\ele408\2007Spring>m68k-elf-as -m5200 edma.s

D:\ele408\2007Spring>
```

1. Input the command **m68k-elf-as -m5200 filename.s** to compile your *.s file to a.out file.



```
C:\WINDOWS\system32\cmd.exe
02/06/2007 06:47 PM          1,348 pit.s
          13 File(s)      1,134,906 bytes
          2 Dir(s)      1,986,887,680 bytes free

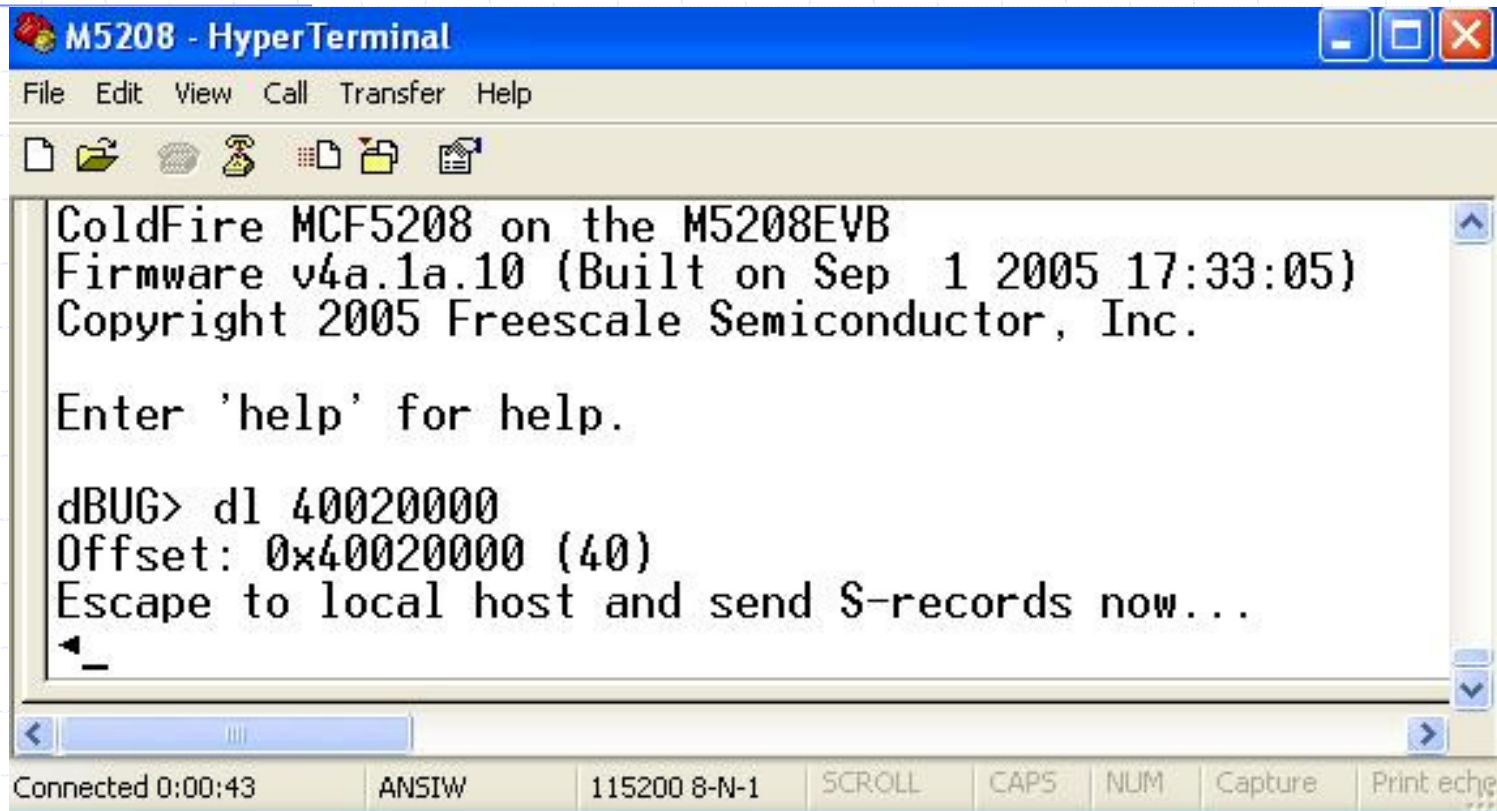
D:\ele408\2007Spring>m68k-elf-as -m5200 edma.s

D:\ele408\2007Spring>m68k-elf-objcopy -Osrec a.out edma.srec

D:\ele408\2007Spring>
```

2. Input the command **m68k-elf-objcopy -Osrec a.out filename.srec** to compile a.out file to *.srec file which can be read by the 5208 board.

Download your code



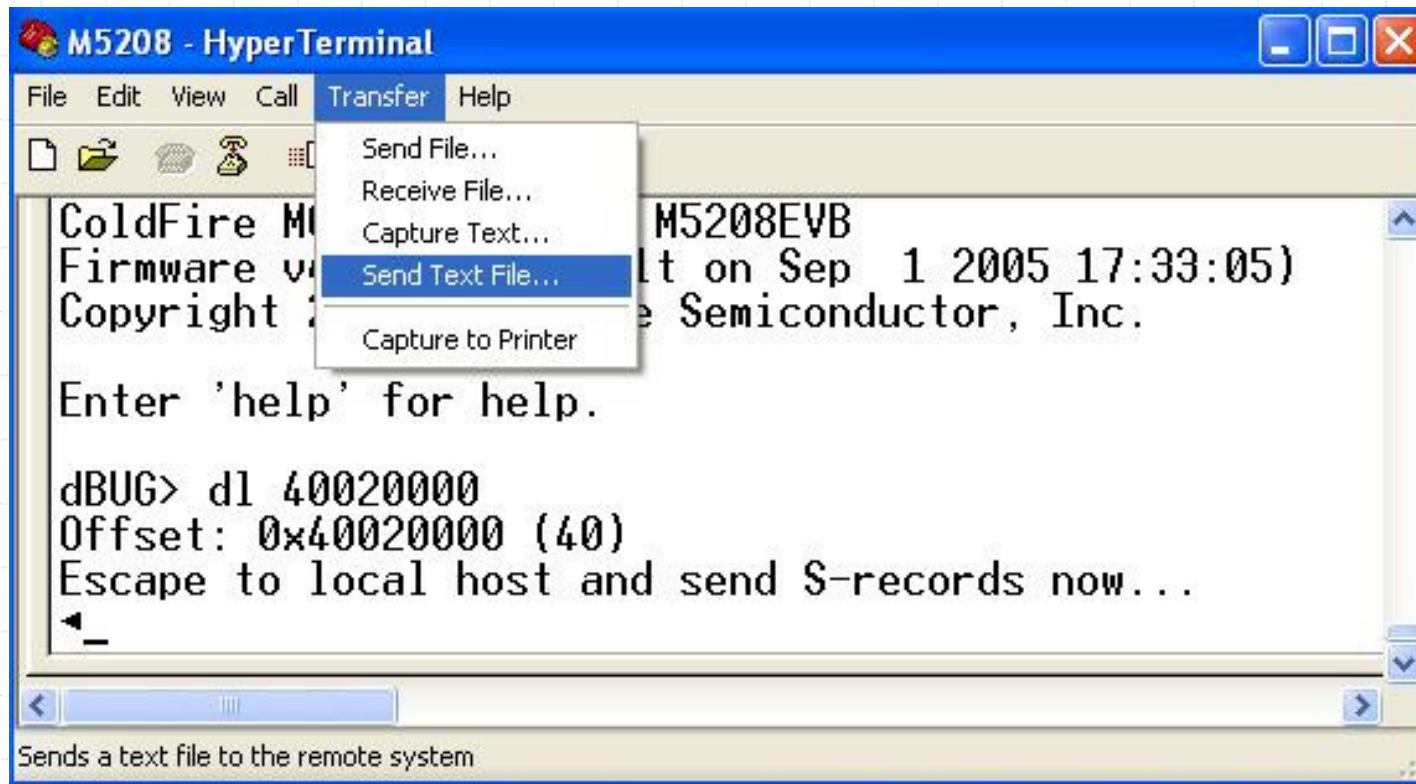
The screenshot shows a HyperTerminal window titled "M5208 - HyperTerminal". The menu bar includes File, Edit, View, Call, Transfer, and Help. The toolbar contains icons for file operations and communication. The main text area displays the following text:

```
ColdFire MCF5208 on the M5208EVB  
Firmware v4a.1a.10 (Built on Sep 1 2005 17:33:05)  
Copyright 2005 Freescale Semiconductor, Inc.  
  
Enter 'help' for help.  
  
dBUG> dl 40020000  
Offset: 0x40020000 (40)  
Escape to local host and send S-records now...  
_
```

The status bar at the bottom shows "Connected 0:00:43", "ANSIW", "115200 8-N-1", "SCROLL", "CAPS", "NUM", "Capture", and "Print echo".

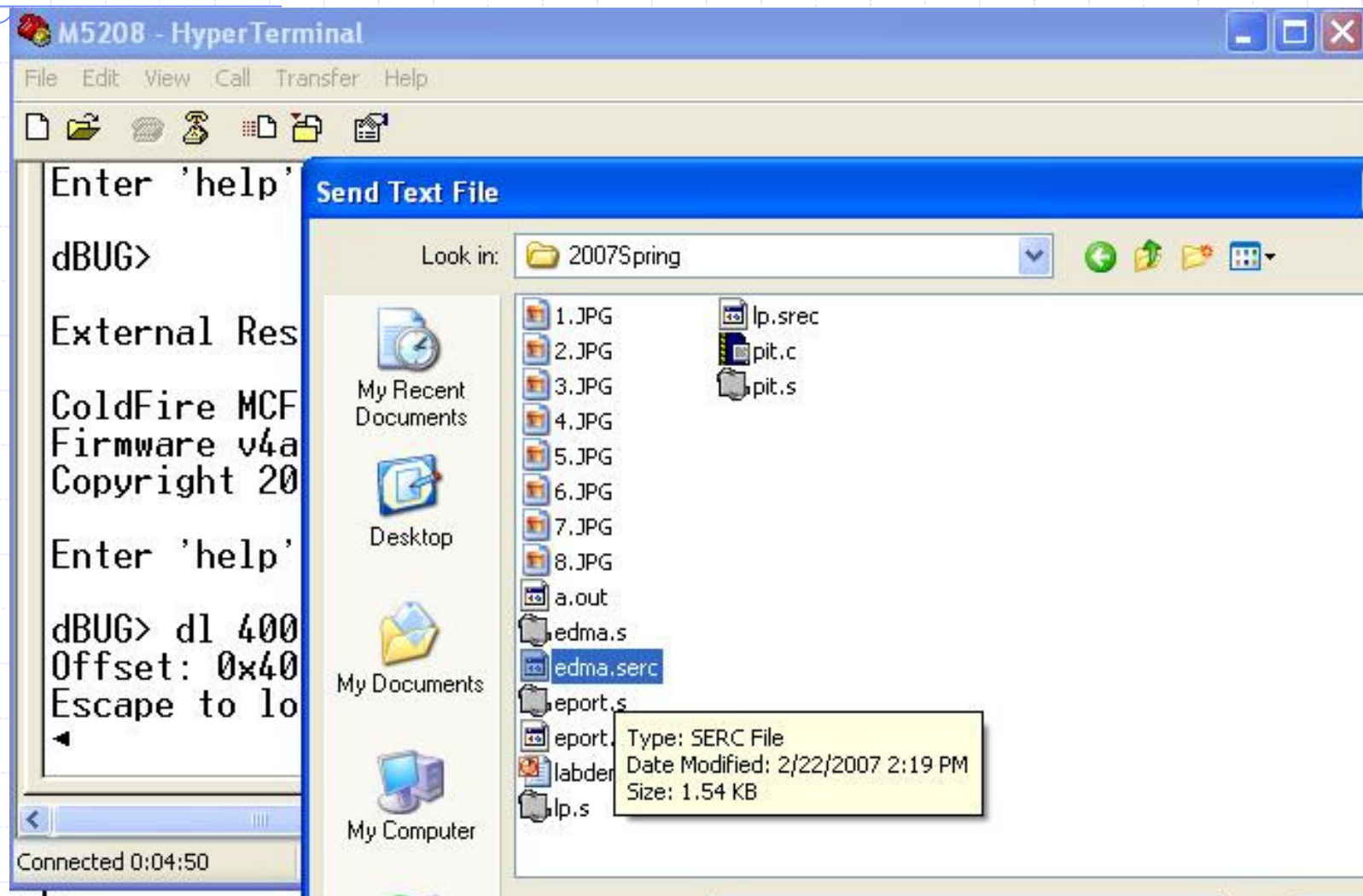
In dBug prompt of Hyper Terminal, type in 'dl 40020000' where "40020000" is the memory location storing your program

Download your code

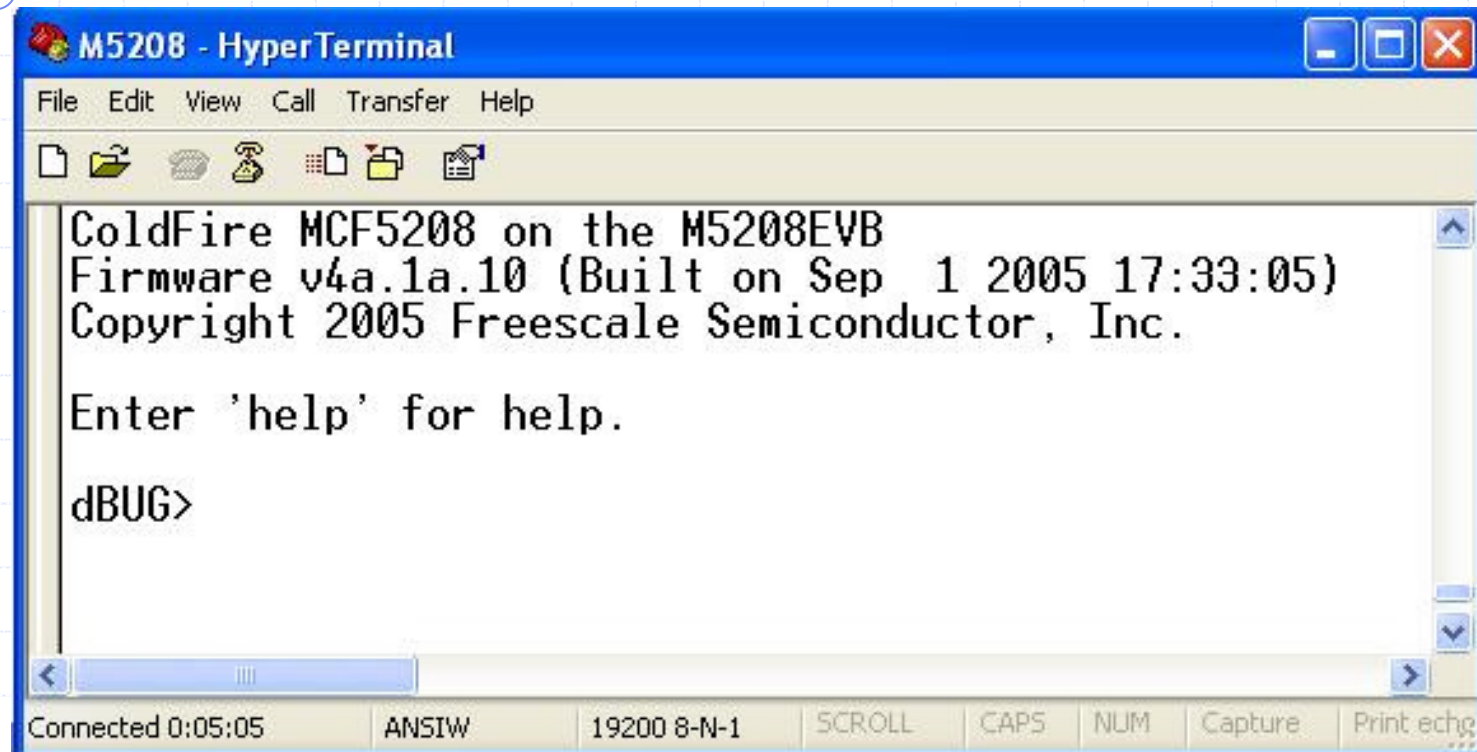


Transfer -> Send Text Files

Select your SREC file to download

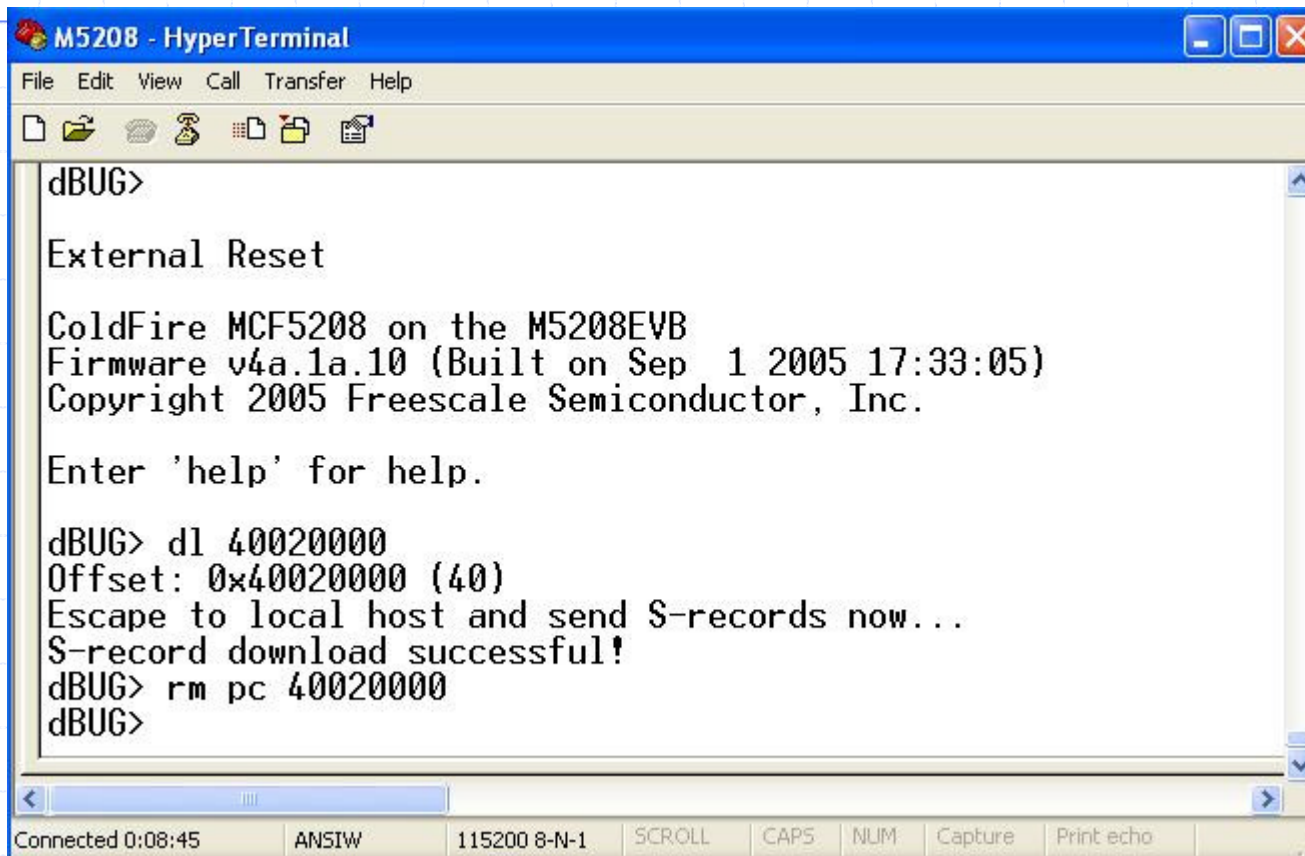


Run your code



After downloading the file, use GO 40020000 or use GT or TRACE to run the program.

Run the Demo program



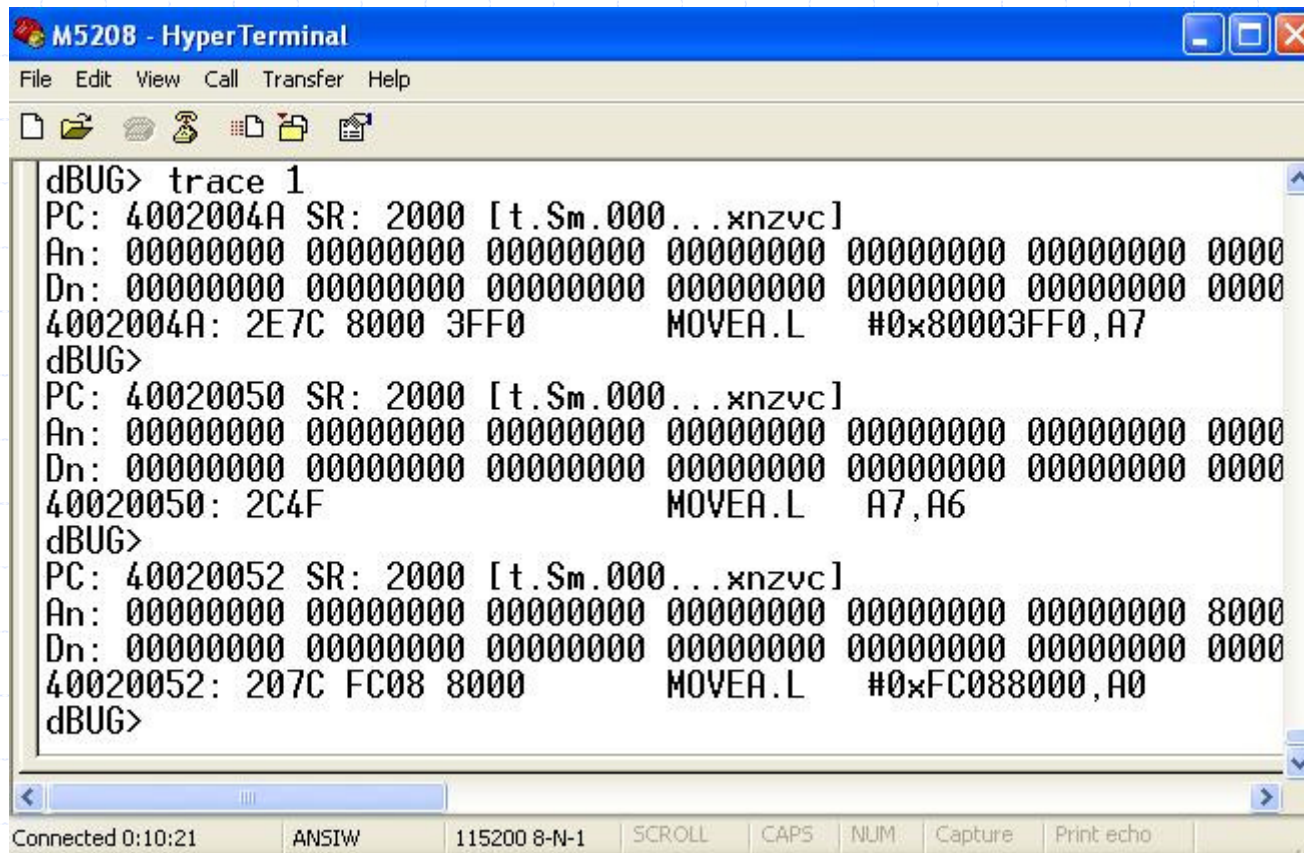
The screenshot shows a HyperTerminal window titled "M5208 - HyperTerminal". The menu bar includes File, Edit, View, Call, Transfer, and Help. The toolbar contains icons for file operations and communication. The main text area displays the following text:

```
dBUG>  
  
External Reset  
  
ColdFire MCF5208 on the M5208EVB  
Firmware v4a.1a.10 (Built on Sep 1 2005 17:33:05)  
Copyright 2005 Freescale Semiconductor, Inc.  
  
Enter 'help' for help.  
  
dBUG> dl 40020000  
Offset: 0x40020000 (40)  
Escape to local host and send S-records now...  
S-record download successful!  
dBUG> rm pc 40020000  
dBUG>
```

The status bar at the bottom shows "Connected 0:08:45", "ANSIW", "115200 8-N-1", and buttons for SCROLL, CAPS, NUM, Capture, and Print echo.

1. Use "rm" command to change the pc register to 40020000, which is the beginning address of the program.

Run the Demo program



```
M5208 - HyperTerminal
File Edit View Call Transfer Help

dBUG> trace 1
PC: 4002004A SR: 2000 [t.Sm.000...xnzvc]
An: 00000000 00000000 00000000 00000000 00000000 00000000 0000
Dn: 00000000 00000000 00000000 00000000 00000000 00000000 0000
4002004A: 2E7C 8000 3FF0      MOVEA.L    #0x80003FF0,A7
dBUG>
PC: 40020050 SR: 2000 [t.Sm.000...xnzvc]
An: 00000000 00000000 00000000 00000000 00000000 00000000 0000
Dn: 00000000 00000000 00000000 00000000 00000000 00000000 0000
40020050: 2C4F              MOVEA.L    A7,A6
dBUG>
PC: 40020052 SR: 2000 [t.Sm.000...xnzvc]
An: 00000000 00000000 00000000 00000000 00000000 00000000 8000
Dn: 00000000 00000000 00000000 00000000 00000000 00000000 0000
40020052: 207C FC08 8000      MOVEA.L    #0xFC088000,A0
dBUG>
```

Connected 0:10:21 ANSIW 115200 8-N-1 SCROLL CAPS NUM Capture Print echo

2. Use the TRACE feature to single-step through the program.

Wrap up

After doing the lab we need you to:

- Log off Windows XP;
- Power off the board.

References

1. Motorola ColdFire MCF5208 Processor -- MCF5208 User's Manual
2. MCF5208 Reference Manual

Try the Demo program

```
move.l #0xFFFFFFFF, %d0
```

```
move.w #0x3000, %d0
```

```
add.l #0xFFFF0000, %d0
```

```
movea.w #0x3000, %a0
```

```
movea.w #0x4000, %a1
```

The commands to be used:

```
m68k-elf-as -m5200 filename.s
```

```
m68k-elf-objcopy -Osrec a.out filename.srec
```

```
rm
```

```
Trace 1
```